

## **REMARKS**

### ***Status of the claims***

Upon entry of this amendment, claims 26-28, 31-41, 44, 45, 48-61, 70-81, 83-86, 89, 93, 95-107, 116-125, 128, 132, 134-143, 146, 150, 152-161, 164, 168, 170-179, 182, 186, 188-196, 205-213, 215, 225-231, 247-251, 260-273, 276, 280, 282-290, 293, 297, 299-307, 310, 314, 316-324, 333-341, 343, 352-359, 362, 366, 370, 374, 378, 382, 386, 390, 406, 410, 414, 424-430 will be pending. Cumulatively, Applicants have cancelled claims 1-25, 29, 30, 42, 43, 46, 47, 62-69, 82, 87, 88, 90-92, 94, 108-115, 126, 127, 129-131, 133, 144, 145, 147-149, 151, 162, 163, 165-167, 169, 180, 181, 183-185, 187, 197-204, 214, 216-224, 232-246, 252-259, 274, 275, 277-279, 281, 291, 292, 294-296, 298, 308, 309, 311-313, 315, 325-332, 342, 344-351, 360, 361, 363-365, 367-369, 371-373, 375-377, 379-381, 383-385, 387-389, 391-405, 407-409, 411-413 and 415-423 without prejudice or disclaimer. Applicants reserve the right to pursue the subject matter of the claims cancelled herein in one or more continuing applications.

The Examiner has indicated that claims 26-28, 31-34, 36-38, 124, 125, 134-137, 139-143, 152-155 and 157-159 are allowable (see Paper No. 17, page 11). As regards the allowable claims, Applicants point out to the Examiner that a minor amendment has been made to each of claims 125 and 143.

For the Examiner's convenience, a Clean Version of the Entire Set of Pending Claims (including amendments made herein) as allowed for under 37 C.F.R. §1.121(c)(3) is enclosed.

### ***Amendments to the claims***

Amendments to the claims have been made in accordance with the discussion during the interview on April 14, 2003 and subsequent telephone discussions with Examiner Bunner. For convenience, in the present response, Applicants will refer the Examiner to disclosure in the specification by referencing the appropriate paragraph numbers of the Substitute Specification that was submitted on May 3, 2002.

In claims 39, 78, 160, 178, 268, 290 and 307, the words "modulates leukocyte" have been replaced with the words "stimulates B lymphocyte." In claims 89, 93, 128, 132, 146, 150, 164, 168, 182, 186, 276, 280, 293, 297, 310, 314, 362, 366, 370, 374, 378, 382, 386, 390, 406, 410 and 414, the word "leukocyte" has been replaced with the phrase "B

lymphocyte." Support for these amendments may be found, for example, in the specification in paragraphs [0040], [0051], [0077], [0153], [0156], [0620], [0622] and Examples 6 and 7.

Claims 57, 103, 196, 213, 247, 324 and 341 have been amended to replace the phrase "modulates leukocyte proliferation, differentiation or survival" with the phrase "can be used to generate or select for an antibody that specifically binds the polypeptide of SEQ ID NO:2." Support for these amendments may be found, for example, in the specification in paragraphs [0331], [0342] – [0491] and Example 9.

Claims 35, 53, 74, 99, 120, 138, 156, 174, 192, 209, 228, 264, 286, 303, 320, 337, 356 has been amended such that these claims now recite "wherein said radiolabel is <sup>131</sup>I" in place of the phrase "wherein said protein is cytotoxic to Neutrokin- $\alpha$  receptor bearing cells." Support for these amendments may be found, for example, in the specification in paragraphs [0529], [0540] and [0543].

In claims 125 and 143, the word "protein" has been amended to "polypeptide."

Applicants have reinstated former claim 214 as new claim 430 and corrected the dependency of claim 225 to depend on claim 430, thereby re-establishing antecedent basis for the term "heterologous sequence" in claim 225.

The dependency of claim 343 has been amended to depend from claim 341, rather than cancelled claim 242.

Claims 374 and 382 have been amended to depend from claims 124 and 142, respectively.

No new matter has been added by way of amendment. Applicants respectfully request that these amendments be entered.

***Information Disclosure Statement:***

The Examiner has not considered the references B1-B4 cited in the First Supplemental Information Disclosure Statement submitted on May 3, 2002 in the present application. Applicant's respectfully request reconsideration of these references. To facilitate the Examiner's review of these references, copies of references B1-B4 are submitted herewith. Applicants respectfully request reconsideration of these references.

***Claim Objections and Rejections Under 35 U.S.C. §112, first and second paragraphs***

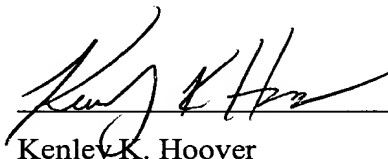
The amendments made herein have been made in accordance with the during the interview on April 14, 2003 and subsequent telephone conversations with Examiner Bunner. It is believed that these amendments overcome or obviate the outstanding objections and rejections and place the application in condition for allowance.

A Notice of Allowance is earnestly solicited. If in the opinion of the Examiner, a telephone conference would expedite prosecution, the undersigned can be reached at the telephone number indicated below.

Finally, if there are any fees due in connection with the filing of this paper, please charge the fees to Deposit Account No. 08-3425.

Respectfully submitted,

Date: July 16, 2003



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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Yu et al.

Art Unit: 1647

Application No.: 09/507,968

Examiner: B. Bunner

Filed: February 22, 2000

Atty Docket No.: PF343P3

For: **Neutrokin- $\alpha$  and Neutrokin- $\alpha$   
Splice Variant**

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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

Amendments are shown in bold with insertions indicated with underlining and deletions indicated by strikeout.

Claims 62-69, 87-94, 108-115, 126, 127, 129-131, 133, 144, 145, 147-149, 151, 162, 163, 165-167, 169, 180, 181, 183-185, 187, 197-204, 216-223, 232-238, 240-246, 252-259, 274-281, 291, 292, 294-296, 298, 308, 309, 311-313, 315, 325-332, 344-351, 360, 361, 363-365, 367-369, 371-377, 379-381, 383-385, 387-389, 391-409, 411-413 and 415-423 have been cancelled.

New claim 430 has been added.

Claims 35, 39, 53, 57, 74, 78, 99, 103, 120, 125, 128, 132, 138, 143, 146, 150, 156, 160, 164, 168, 174, 178, 182, 186, 192, 196, 209, 213, 225, 228, 247, 264, 268, 286, 290, 293, 297, 303, 307, 310, 314, 320, 324, 337, 341, 343, 356, 362, 366, 370, 378, 382, 386, 390, 410, 414 have been replaced with the following rewritten claims.

35. (Amended) The protein of claim ~~26~~34 wherein ~~the protein is cytotoxic to Neutrokin- $\alpha$  receptor bearing cells~~said radiolabel is <sup>131</sup>I.

39. (Twice Amended) An isolated protein comprising a first amino acid sequence that is 90% or more identical to a second amino acid sequence selected from the group consisting of:

(a) the amino acid sequence of amino acid residues 1 to 285 of SEQ ID NO:2; and

(b) the amino acid sequence of amino acid residues 73 to 285 of SEQ ID NO:2;

wherein said protein ~~modulates leukocyte~~ stimulates B lymphocyte proliferation, differentiation or survival.

53. (Amended) The protein of claim ~~39-52~~ wherein ~~the protein is cytotoxic to Neutrokin- $\alpha$  receptor bearing cells~~ said radiolabel is  $^{131}\text{I}$ .

57. (Twice Amended) An isolated protein comprising an amino acid sequence selected from the group consisting of:

(a) the amino acid sequence of amino acid residues n to 285 of SEQ ID NO:2, where n is an integer in the range of 2-190;

(b) the amino acid sequence of amino acid residues 1 to m of SEQ ID NO:2, where m is an integer in the range of 274-284; and

(c) the amino acid sequence of amino acid residues n to m of SEQ ID NO:2, where n is an integer in the range of 2-190 and m is an integer in the range of 274-284;

wherein said protein ~~modulates leukocyte proliferation, differentiation or survival~~ can be used to generate or select for an antibody that specifically binds the polypeptide of SEQ ID NO:2.

74. (Amended) The protein of claim ~~57-73~~ wherein ~~the protein is cytotoxic to Neutrokin- $\alpha$  receptor bearing cells~~ said radiolabel is  $^{131}\text{I}$ .

78. (Twice Amended) An isolated protein comprising a first amino acid sequence that is 95% or more identical to a second amino acid sequence selected from the group consisting of:

(a) the amino acid sequence of amino acid residues n to 285 of SEQ ID NO:2, where n is an integer in the range of 2-190;

(b) the amino acid sequence of amino acid residues 1 to m of SEQ ID NO:2, where m is an integer in the range of 274-284; and

(c) the amino acid sequence of amino acid residues n to m of SEQ ID NO:2, where n is an integer in the range of 2-190 and m is an integer in the range of 274-284; and

wherein said protein ~~modulates leukocyte~~ stimulates B lymphocyte proliferation, differentiation or survival.

89. (Amended) The protein of claim 78 wherein the protein stimulates ~~leukocyte~~ B lymphocyte proliferation.

93. (Amended) The protein of claim 78 wherein the protein stimulates ~~leukocyte~~ B lymphocyte differentiation.

99. (Amended) The protein of claim ~~78-98~~ wherein ~~the protein is cytotoxic to Neutrokin-α receptor bearing cells~~ said radiolabel is <sup>131</sup>I.

103. (Twice Amended) An isolated protein comprising the amino acid sequence of amino acid residues 191-285 of SEQ ID NO:2, wherein said protein can be used to generate or select for an antibody that specifically binds the polypeptide of SEQ ID NO:2~~modulates leukocyte proliferation, differentiation or survival~~.

120. (Amended) The protein of claim ~~103-119~~ wherein ~~the protein is cytotoxic to Neutrokin-α receptor bearing cells~~ said radiolabel is <sup>131</sup>I.

125. (Amended) The protein of claim 124 wherein said protein specifically binds an antibody that specifically binds the ~~protein~~ polypeptide of SEQ ID NO:2.

128. (Amended) The protein of claim 124 wherein the protein stimulates **leukoeyte B lymphocyte** proliferation.

132. (Amended) The protein of claim 124 wherein the protein stimulates **leukoeyte B lymphocyte** differentiation.

138. (Amended) The protein of claim ~~124-137~~ wherein ~~the protein is cytotoxic to Neutrokin- $\alpha$  receptor bearing cells~~ **said radiolabel is <sup>131</sup>I.**

143. (Amended) The protein of claim 142 wherein said protein specifically binds an antibody that specifically binds the **protein polypeptide** of SEQ ID NO:2.

146. (Amended) The protein of claim 142 wherein the protein stimulates **leukoeyte B lymphocyte** proliferation.

150. (Amended) The protein of claim 142 wherein the protein stimulates **leukoeyte B lymphocyte** differentiation.

156. (Amended) The protein of claim ~~142-155~~ wherein ~~the protein is cytotoxic to Neutrokin- $\alpha$  receptor bearing cells~~ **said radiolabel is <sup>131</sup>I.**

160. (Twice Amended) An isolated protein consisting of an amino acid sequence that is 90% or more identical to the amino acid sequence of amino acid residues 134-285 of SEQ ID NO:2, wherein said protein ~~modulates leukoeyte~~ **stimulates B lymphocyte** proliferation, differentiation or survival.

164. (Amended) The protein of claim 160 wherein the protein stimulates **leukoeyte B lymphocyte** proliferation.

168. (Amended) The protein of claim 160 wherein the protein stimulates **leukoeyte B lymphocyte** differentiation.

174. (Amended) The protein of claim ~~160-173~~ wherein ~~the protein is cytotoxic to Neutrokin- $\alpha$  receptor bearing cells~~ said radiolabel is <sup>131</sup>I.

178. (Twice Amended) An isolated protein comprising an amino acid sequence that is 90% or more identical to the amino acid sequence of amino acid residues 134-285 of SEQ ID NO:2, wherein said protein ~~modulates leukocyte~~ stimulates B lymphocyte proliferation, differentiation or survival.

182. (Amended) The protein of claim 178 wherein the protein stimulates leukocyte B lymphocyte proliferation.

186. (Amended) The protein of claim 178 wherein the protein stimulates leukocyte B lymphocyte differentiation.

192. (Amended) The protein of claim ~~178-191~~ wherein ~~the protein is cytotoxic to Neutrokin- $\alpha$  receptor bearing cells~~ said radiolabel is <sup>131</sup>I.

196. (Twice Amended) An isolated protein comprising a fragment of the polypeptide of SEQ ID NO:2, wherein said fragment ~~modulates leukocyte proliferation, differentiation or survival~~ can be used to generate or select for an antibody that specifically binds the polypeptide of SEQ ID NO:2.

209. (Amended) The protein of claim ~~196-208~~ wherein ~~the protein is cytotoxic to Neutrokin- $\alpha$  receptor bearing cells~~ said radiolabel is <sup>131</sup>I.

213. (Twice Amended) An isolated protein comprising an amino acid sequence of at least 30 contiguous amino acid residues of SEQ ID NO:2 wherein said protein can be used to generate or select for an antibody that specifically binds the polypeptide of SEQ ID NO:2~~modulates leukocyte proliferation, differentiation or survival.~~



225. (Twice Amended) The protein of claim ~~213-430~~ wherein the heterologous amino acid sequence is the amino acid sequence of an immunoglobulin Fc domain.

228. (Amended) The protein of claim ~~213-227~~ wherein ~~the protein is cytotoxic to Neutrokin- $\alpha$  receptor bearing cells~~ said radiolabel is <sup>131</sup>I.

247. (Twice Amended) An isolated protein comprising an amino acid sequence selected from the group consisting of:

(a) the amino acid sequence of an amino-terminal deletion protein mutant of the full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768, wherein said amino-terminal deletion protein mutant excludes up to 190 amino acid residues from the amino terminus of said full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768;

(b) the amino acid sequence of a carboxy-terminal deletion protein mutant of the full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768, wherein said carboxy-terminal deletion protein mutant excludes up to 11 amino acid residues from the carboxy terminus of said full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768; and

(c) the amino acid sequence of an amino- and carboxy-terminal deletion protein mutant of the full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768, wherein said amino- and carboxy-terminal deletion protein mutant excludes up to 190 amino acid residues from the amino terminus and up to 11 amino acid residues from the carboxy terminus of said ~~said~~ full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768;

wherein said protein ~~modulates leukocyte proliferation, differentiation or survival~~ can be used to generate or select for an antibody that specifically binds the polypeptide of SEQ ID NO:2.

264. (Amended) The protein of claim ~~247-263~~ wherein ~~the protein is cytotoxic to Neutrokin- $\alpha$  receptor bearing cells~~ said radiolabel is <sup>131</sup>I.

268. (Twice Amended) An isolated protein comprising a first amino acid sequence that is 95% or more identical to a second amino acid sequence selected from the group consisting of:

(a) the amino acid sequence of an amino-terminal deletion protein mutant of the full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768, wherein said amino-terminal deletion protein mutant excludes up to 190 amino acid residues from the amino terminus of said full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768;

(b) the amino acid sequence of a carboxy-terminal deletion protein mutant of the full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768, wherein said carboxy-terminal deletion protein mutant excludes up to 11 amino acid residues from the carboxy terminus of said full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768; and

(c) the amino acid sequence of an amino- and carboxy-terminal deletion protein mutant of the full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768, wherein said amino- and carboxy-terminal deletion protein mutant excludes up to 190 amino acid residues from the amino terminus and up to 11 amino acid residues from the carboxy terminus of said ~~said~~ full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768;

wherein said protein ~~modulates leukocyte~~ stimulates B lymphocyte proliferation, differentiation or survival.

276. (Amended) The protein of claim 268 wherein the protein stimulates ~~leukocyte~~ B lymphocyte proliferation.

280. (Amended) The protein of claim 268 wherein the protein stimulates ~~leukocyte~~ B lymphocyte differentiation.

286. (Amended) The protein of claim ~~268~~ 285 wherein ~~the protein is cytotoxic to Neutrokin- $\alpha$  receptor bearing cells~~ said radiolabel is <sup>131</sup>I.

290. (Twice Amended) An isolated protein comprising a first amino acid sequence that is 95% or more identical to a second amino acid sequence consisting of the amino acid sequence of an amino-terminal deletion protein mutant of the full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768, wherein said amino-terminal deletion protein mutant excludes up to 133 amino acid residues from the amino terminus of said full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768, and wherein said protein ~~modulates leukocyte~~ stimulates B lymphocyte proliferation, differentiation or survival.

293. (Amended) The protein of claim 290 wherein the protein stimulates leukocyte B lymphocyte proliferation.

297. (Amended) The protein of claim 290 wherein the protein stimulates leukocyte B lymphocyte differentiation.

303. (Amended) The protein of claim ~~290-302~~ wherein ~~the protein is cytotoxic to Neutroline  $\alpha$  receptor bearing cells~~ said radiolabel is <sup>131</sup>I.

307. (Twice Amended) An isolated protein consisting of a first amino acid sequence that is 95% or more identical to a second amino acid sequence consisting of the amino acid sequence of an amino-terminal deletion protein mutant of the full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768, wherein said amino-terminal deletion protein mutant excludes up to 133 amino acid residues from the amino terminus of said full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768, and wherein said protein ~~modulates leukocyte~~ stimulates B lymphocyte proliferation, differentiation or survival.

310. (Amended) The protein of claim 307 wherein the protein stimulates leukocyte B lymphocyte proliferation.

314. (Amended) The protein of claim 307 wherein the protein stimulates leukocyte B lymphocyte differentiation.

320. (Amended) The protein of claim ~~307-319~~ wherein ~~the protein is cytotoxic to Neutrokin-α receptor bearing cells~~ said radiolabel is <sup>131</sup>I.

324. (Twice Amended) An isolated protein comprising a fragment of the polypeptide encoded by the cDNA clone contained in ATCC Deposit Number 97768, wherein said fragment ~~modulates leukocyte proliferation, differentiation or survival~~ can be used to generate or select for an antibody that specifically binds the polypeptide of SEQ ID NO:2.

337. (Amended) The protein of claim ~~324-336~~ wherein ~~the protein is cytotoxic to Neutrokin-α receptor bearing cells~~ said radiolabel is <sup>131</sup>I.

341. (Twice Amended) An isolated protein comprising an amino acid sequence of at least 30 contiguous amino acid residues of the polypeptide encoded by the cDNA clone contained in ATCC Deposit Number 97768 wherein said protein ~~modulates leukocyte proliferation, differentiation or survival~~ can be used to generate or select for an antibody that specifically binds the polypeptide of SEQ ID NO:2.

343. (Amended) The protein of claim ~~342-341~~ which comprises an amino acid sequence of at least 50 contiguous amino acid residues of the polypeptide encoded by the cDNA clone contained in ATCC Deposit Number 97768.

356. (Amended) The protein of claim ~~341-355~~ wherein ~~the protein is cytotoxic to Neutrokin-α receptor bearing cells~~ said radiolabel is <sup>131</sup>I.

362. (Amended) The protein of claim 39 wherein the protein stimulates ~~leukoocyte~~ B lymphocyte proliferation.

366. (Amended) The protein of claim 39 wherein the protein stimulates ~~leukoocyte~~ B lymphocyte differentiation.

370. (Amended) The protein of claim 39 wherein the protein stimulates ~~leukoocyte~~ B lymphocyte survival.

374. (Amended) The protein of claim ~~57~~ 124 wherein the protein stimulates ~~leukoocyte~~ **B lymphocyte** survival.

378. (Amended) The protein of claim 78 wherein the protein stimulates ~~leukoocyte~~ **B lymphocyte** survival.

382. (Amended) The protein of claim ~~103~~ 142 wherein the protein stimulates ~~leukoocyte~~ **B lymphocyte** survival.

386. (Amended) The protein of claim 160 wherein the protein stimulates ~~leukoocyte~~ **B lymphocyte** survival.

390. (Amended) The protein of claim 178 wherein the protein stimulates ~~leukoocyte~~ **B lymphocyte** survival.

406. (Amended) The protein of claim 268 wherein the protein stimulates ~~leukoocyte~~ **B lymphocyte** survival.

410. (Amended) The protein of claim 290 wherein the protein stimulates ~~leukoocyte~~ **B lymphocyte** survival.

414. (Amended) The protein of claim 307 wherein the protein stimulates ~~leukoocyte~~ **B lymphocyte** survival.

430. (New) The protein of claim 213 wherein the protein also comprises a heterologous amino acid sequence.